

CLAIMS

1. Use of an SiC-based composite material as an inner coating for an aluminium smelting furnace or as an inner coating for a fused salt electrolytic cell, characterised in that said composite material has been prepared from a so-called "precursor mixture" comprising at least one  $\beta$ -SiC precursor and at least one carbonated resin,  
5 and in that said composite material contains inclusions, wherein at least one part consists of  $\alpha$ -SiC, in a  $\beta$ -SiC matrix.
2. Use according to claim 1, wherein the fraction by weight of said inclusions is between 80% and 95% with respect to the total mass of the precursor mixture.  
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3. Use according to claim 1 or 2, wherein part of said inclusions consists of alumina, silica, TiN,  $\text{Si}_3\text{N}_4$  or a mixture of these compounds.
4. Use according to any of claims 1 to 3, wherein at least 50% by weight of said  
15 inclusions, and preferentially at least 70% by weight of said inclusions, consists of  $\alpha$ -SiC.
5. Use according to any of claims 1 to 4, wherein said material has a density of at least  $2.4 \text{ g/cm}^3$ , and preferentially a density between  $2.45$  and  $2.75 \text{ g/cm}^3$ .  
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6. Use according to any of claims 1 to 5, wherein said material is used in the form of bricks or panels.
7. Use according to any of claims 1 to 6 as a lining for an electrolytic cell for the  
25 production of aluminium from a mixture of alumina and cryolite.